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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/028,781

12/28/2001

Siavash Fallahi

1875.1270001/JTH/BAM

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08/25/2004

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVE., N.W.
WASHINGTON, DC 20005

EXAMINER

BRINEY III, WALTER F

ART UNIT

PAPER NUMBER

2644

13

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,781

Applicant(s)

FALLAHI ET AL.

Examiner

Walter F Briney III

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-26 is/are allowed.
- 6) ☒ Claim(s) 1-14 and 27-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 1. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Gay (US Patent 4,796,295).**

Claim 1 is limited to *a communications device*. Gay discloses an integrated circuit (i.e. *a substrate*) (column 1, lines 6-17) *having an input* (figure 1, element 1) *and an output* (figure 1, element 2), which is connected to a telephone network (i.e. *a communications network*). Gay discloses *a relay* (figure 1, element 5) *disposed on said substrate and connected between said input and said output of said substrate*.

Inherently some voltage will leak through the relay with any voltage applied, furthermore, because the relay is a PNP type, it is activated with a base voltage of zero (i.e. *said relay capable of being closed when substantially zero volts is applied to said relay*). Gay discloses *a switchable termination resistor* (figure 1, elements 7, 10, and 11) *disposed on said substrate and coupled to said input of said substrate*. The resistors provide impedance matching to the external circuitry of the telephone network (i.e. *having an impedance capable of providing a termination for an external circuit that is disposed external to said substrate*) (column 4, lines 19-34). The *external circuit also*

connected to said input of said substrate via the input port (figure 1, element 1).

Therefore, Gay anticipates all limitations of the claim.

2. Claims 1 and 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Akselsen (WO 00/67452).

Claim 34 is limited to *a communications device*. Akselsen discloses an adapter that allows a normal telephone to be interfaced with both a PSTN and a computer network, sometimes referred to as a packet-switched network (page 1, Field of the Invention). As shown in figure 2, the device comprises a two-wire, or differential, connection to a telephone network (elements 34, 14, 42). A relay (44) exists to connect to either the PSTN or the computer network. The relay is positioned so that it is connected to the PSTN even if no power is supplied to the interface (page 9, fifth paragraph). In addition, the interface includes a call-holding termination resistor (48, that is serially connected by a second relay (46). The termination resistor provides a termination for an incoming PSTN call (page 10, first paragraph), the circuitry providing the call being an external device that is terminated by the resistor. Therefore, Akselsen anticipates all limitations of the claim.

Claim 1 is similarly rejected for the same reasons evidenced in the rejection of claim 34 in view of Akselsen.

Claim 35 is limited to *the communications device of claim 34*, as covered by Akselsen. The devices of Akselsen are physical elements as indicated on page 9, paragraph 4 (i.e. *wherein said substrate is apportion of a physical layer of said*

communications device). The relay is positioned to be connected with the PSTN in the event of no power (page 9, paragraph 4) (i.e. so that said relay is substantially closed when no power is applied to said physical layer). Therefore, Akselsen anticipates all limitations of the claim.

Claim 36 is limited to *the communications device of claim 34*, as covered by Akselsen. As pointed out in the rejection of claim 34, the interface allows to be used with computer network-based telephony, otherwise known as a packet-switched network, or IP telephony (page 1, Field of the Invention). Hence, the interface is part of an *IP telephone*, and thus, Akselsen anticipates all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-14 and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gay in view of Palara et al. (US Patent 5,828,244).

Claim 2 is limited to *the communications device of claim 1*, as covered by Gay. Gay discloses a relay comprising a BJT. Gay discloses a *drain* connected to a telephone *input* (figure 1, element 1) and a *source* connected to an *output* (figure 1, element 28). Therefore, Gay anticipates all limitations of the claim with the exception wherein said relay includes a native field effect transistor (FET). BJT and FET devices

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are art recognized equivalents in the field of supplying current to a circuit. In this case, Gay discloses a BJT transistor (figure 1, element 5) that acts as a current source to the circuit. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a FET in place of the BJT of Gay for the purpose of providing current to the circuit of Gay. As an example, Palara (US Patent 5,828,244) teaches a FET device that acts as a current source. The examiner takes Official Notice of the fact that native FETs are well known. It would have been obvious to one of ordinary skill in the art at the time of the invention to use native FET devices because native FETs reduce the threshold voltage needed to turn on each gate, therefore, reducing voltage overheads and increasing efficiency.

Claim 3 is rejected for the same reasons as claim 1.

Claim 4 is limited to *the communications device of claim 3*, as covered by Gay. Gay discloses a *rectifying circuit* (figure 3, element 50). Since the *external circuit* comprises any circuit connected to the telephone line, the *input of said rectifying circuit is coupled to said input of said external circuit* (figure 1, element 1); *and an output of said rectifying circuit connected to said gate of said native FET* (figure 3, elements 1 coupled to 5 via elements 59 and 58). Furthermore, with all structural limitations met, the *rectifying circuit* must *rectify an input signal received at said input of said external circuit and produce a rectified voltage that is applied to said gate of said native FET*. Therefore, Gay makes obvious all limitations of the claim.

Claim 30 is rejected for the same reasons as claim 4.

Claim 5 is limited to *the communications device of claim 4*, as covered by Gay. Gay discloses *rectifying circuit* (figure 3, element 50), which *includes a second native FET having one of a source and a drain coupled to an input of said external circuit and the other of said source and said drain coupled to said gate of said native FET* (figure 3, element 58). *A gate of said second native FET also coupled to said input of said substrate* (figure 3, element 58 connected to figure 1, element 1 via figure 3, elements 59 and 50). Therefore, Gay makes obvious all limitations of the claim.

Claim 6 is limited to *the communications device of claim 5*, as covered by Gay. Gay discloses a *gate grounding device* (figure 3, element 56) *coupled to a gate of said second native FET* (figure 3, element 58). Inherently, *said gate grounding device is capable of grounding said gate of said second native FET when a voltage is applied to said substrate*. Therefore, Gay makes obvious all limitations of the claim.

Claim 7 is limited to *the communications device of claim 6*, as covered by Gay. For the same reasons as in claim 2, it would have been obvious to replace the BJT of Gay with a FET (i.e. *wherein said gate grounding device includes a FET*). Gay also discloses *a gate of said FET coupled to said voltage applied to said substrate* (figure 3, element 56 to 57) *a drain of said FET coupled to gate of said second native FET* (figure 3, element 56 to 58), *and a source of said FET coupled to ground* (figure 3, element 56 to ground). Therefore, Gay makes obvious all limitations of the claim.

Claim 8 is limited to *the communications device of claim 4*, as covered by Gay. Gay discloses a diode (i.e. *a switch*) (figure 3, element 59) *connected in series between said output of said rectifying circuit* (figure 3, element 50) *and said gate of said native*

FET (figure 3, element 5). Inherently, said switch is capable of disconnecting said rectifying circuit from said gate of said native FET when a voltage is applied to said substrate. Therefore, Gay makes obvious all limitations of the claim.

Claim 9 is limited to *the communications device of claim 4*, as covered by Gay. Gay discloses a *gate grounding device (figure 3, element 6) coupled to a gate of said native FET (figure 3, element 5). Inherently, said gate grounding device grounds said gate of said native FET when a voltage is applied to said substrate. Therefore, Gay makes obvious all limitations of the claim.*

Claim 32 is rejected for the same reasons as in claims 6 and 9.

Claim 10 is limited to *the communications device of claim 9*, as covered by Gay. For the same reasons as in claim 2, it would have been obvious to replace the BJT of Gay with a FET (i.e. *wherein said gate grounding device includes a FET*). Gay also discloses *a gate of said FET coupled to said voltage applied to said substrate (figure 3, element 6 to 14) a drain of said FET coupled to gate of said native FET (figure 3, element 6 to 5 via 58), and a source of said FET coupled to ground (figure 3, element 6 to ground). Therefore, Gay makes obvious all limitations of the claim.*

Claim 11 is limited to *the communications device of claim 1*, as covered by Gay. Gay discloses a *switch (figure 1, element 5) in series with a resistor (figure 1, element 7). The resistor and switch form part of a feedback network that provides an impedance match (i.e. said resistor determined to provide a desired impedance for said external circuit when said switch is closed) (column 4, lines 27-34). Therefore, Gay makes obvious all limitations of the claim.*

Claims 28 and 29 are rejected for the same reasons as claim 11.

Claim 12 is limited to *the communications device of claim 11*, as covered by Gay. For the same reasons as claim 13, it would have been obvious to position a low-pass filter (i.e. *external circuit*) at the input of the telephone circuit of Gay. Gay discloses balancing the input impedance of a circuit, so all devices in its front end will also have a balanced impedance, including the filter (i.e. *wherein said desired impedance causes said external circuit to have a substantially constant input impedance*). Therefore, Gay makes obvious all limitations of the claim.

Claim 33 is rejected for the same reasons as in claims 7 and 10.

Claim 13 is limited to *the communications device of claim 10*, as covered by Gay. Gay discloses a device that is connected to a telephone network with external circuits connected thereto. Therefore, Gay makes obvious all limitations of the claim with the exception *wherein said external circuit is a filter*. The examiner takes Official Notice of the fact that low pass filters used to split DSL signals before they reach a telephone device like that of Gay is well known. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a filter coupled to the input of the device of Gay for the purpose of separating multiplexed signals.

Claim 14 is limited to *the communications device of claim 1*, as covered by Gay. Gay discloses a telephone network, but not the specific type. Therefore, Gay anticipates all limitations of the claim with the exception *wherein said communications network is an internet protocol (IP) telephone network*. The examiner take Official Notice of the fact that IP telephone networks are well known types of telephone networks that

require impedance matching circuits like that of Gay (i.e. *wherein said communications network is an internet protocol (IP) telephone network*). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the device of Gay in an IP telephone network for the purpose of providing impedance matching.

Claim 27 includes all the limitations of claim 1 and the limitation introduced in claim 13 referring to the external device being a filter. In addition, claim 27 includes the limitation *where the relay includes a first and second native FET*. Clearly, Gay alone does not disclose a first and second native FET, however, in view of the rejection of claim 2, it would have been obvious to replace the BJT transistors of Gay with FET devices and to use native FET devices for the relays to reduce the threshold voltage overhead to approximately zero. Clearly, figures 1 and 3 of Gay depict more than one of each type of transistor so whichever type of substrate is used the relay will be comprised of at least two native FETs. Therefore, Gay in view of Palara makes obvious all limitations of the claim.

Claim 31 is essentially the same as claim 18 and is rejected for the same reasons.

Allowable Subject Matter

4. Claims 15-26 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 15 is allowable over Gay in view of Palara for the reasons indicated in the proceeding section.

Claims 16-26 include the same allowable limitations as claim 15, and thus, are allowable for the same reasons.

Response to Arguments

- 5. Applicant's arguments, see paper 14, filed 28 May 2004, with respect to claims 1, 11, 12, and 14 have been fully considered but are not persuasive.**

With respect to claim 1, 11, 12, and 14, the applicant alleges that Gay fails to teach or suggest *a substrate having an input and an output that are capable of being connected to a communications network*; the examiner respectfully disagrees. Figure 1, includes two ports, 1 and 2. With further reference to figure 3, further detail of the ports is illustrated. Clearly, ports 1 and 2 are coupled to a communications line with both an input and an output through a rectifying bridge (50); the input and output can be arbitrarily assigned based on the flow of current through the rectifier.

With further respect to claim 1, 11, 12, and 14, the applicant alleges that Gay fails to teach or suggest *a relay disposed on said substrate and connected between said input and said output of said substrate*; the examiner respectfully disagrees. Clearly, the relay referred to in the rejection of claim 1 includes the PNP transistor 5. The collector terminal is coupled to terminal 1 and the emitter terminal is coupled to terminal 2 by way of at least a capacitor 8 and a voltage regulator 9.

With further respect to claims 1, 11, 12, and 14, the applicant alleges that Gay fails to teach or suggest a switchable termination resistor; the examiner respectfully disagrees. Reading the abstract will reveal that a current feedback loop including elements 5, 7, and 14 serve to determine the impedance presented to the line at the signal node (2). Element 5 is a PNP transistor (i.e. a switch) and element 7 is a resistor, hence the current feedback loop includes a switchable resistor. For the above stated reasons, the rejection of claim 1 is maintained.

With respect now to claim 2, the applicant alleges that Gay fails to teach or suggest a *native FET*; the examiner agrees. While the examiner originally thought a native FET to be any device requiring nearly zero volts to become conductive, it is now apparent that a native FET refers to a FET device embedded within a substrate and without a well depletion, such that the conductive channel between the source and drain terminals is formed out of the bulk/substrate material with a threshold voltage of zero volts. Furthermore, the office action (paper 12, filed 23 February 2004) did not cover this limitation. Using a native FET would not render claims 2-10 and 13 allowable, however, the details why are provided in the preceding section.

With respect to claim 15, the applicant alleges that Gay does not disclose a differential input and output; the examiner respectfully disagrees. As shown in the rationale supporting the rejection of claim 1, Gay disclose a diode bridge, which is coupled to a telephonic communication line. The line itself is differential making the input and output differential, however, there is no possibility of indicating that Gay discloses a differential relay. For example, Gay discloses a complementary pair of

transistors (figure 3, elements 5 and 56). Even if these were considered as differential, both could not be native transistors as one is PNP, or possibly PMOS as taught by Palara, while the other is NPN, or possibly NMOS as taught by Palara. The result is that claim 15 is allowable over Gay in view of Palara.

Claims 16-26 include the differential relay composed of two native FETs, and thus, are allowable over Gay in view of Palara for the same reasons as claim 15.

Claims 27-33 have been newly rejected to address the deficiencies of the last office action.

Claims 34-36 are newly submitted as of the time of this response, and are addressed in the preceding section.

Conclusion

Some of the new grounds of rejection presented herein were not necessitated by amendment, and thus this action is non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER